

REMARKS

Claims 1-36 are now pending. The Examiner is thanked for his kind allowance of claims 1-21. The Examiner is also thanked for his kind acknowledgement of patentable subject matters in dependent claims 23-26, 28-31, and 33-36.

Claims 22, 27, and 32 have been amended to further particularly point out and distinctly claim subject matter regarded as the invention. By this amendment, the distinctive features which have been fully discussed in the previous response are more clearly defined. No "new matter" has been added by the amendment.

The 35 U.S.C. § 103 Rejection

Claims 22, 27, and 32 stand rejected under 35 U.S.C. § 103(a) as being allegedly unpatentable over Fujii (U.S. Pat. No. 5,349,309). This rejection is respectfully traversed.

According to M.P.E.P. § 2143,

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.

The circuit of the present invention defined in claim 22, as amended, includes a capacitance controller that switches a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array alternately to each other based on the

frequency control signal such that the switched-capacitor in said first capacitor array and the switched-capacitor in said second capacitor array are not switched at the same time.

The Examiner correctly acknowledges that Fujii does not teach a controller that switches a switched-capacitor in a first capacitor array and a switched-capacitor in a second capacitor array alternately to each other. However, the Examiner alleges, in the Final Office Action, as follows:

It would have been obvious to one of ordinary skill in the art, that once the input 1 changes that the adder 6 (controller) output a new signal (IN0 through IN[5]), which would require switching of the weighted capacitors in both capacitor arrays. For example, when the frequency of the phase locked loop changes, the adder (controller) would alternately switches between the switches 36 and 42 being closed and remaining switches being opened or switches 37 and 43 being closed and the remaining switches being opened in order to select a desired weighted capacitance. ... Therefore, when the frequency of PLL changes, the adder (controller) alternately switches the switched capacitors of the first and second capacitor array. The motivation or suggest would be to allow for control of the oscillation frequency.

However, in the claimed invention, a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array are switched alternately to each other such that the two switched capacitors are not switched at the same time or simultaneously, as clearly recited in claim 22. As the Examiner correctly observes, however, in Fujii (FIG 6 thereof), the switch **36** (in the first capacitor array) and the switch **42** (in the second capacitor array) are *simultaneously* closed (or opened) in a first instance. Similarly, the switch **37** (in the first capacitor array) and the switch **43** (in the second capacitor array) are *simultaneously* closed (or opened) in a second instance. That is, at any instance in Fujii, a switched-capacitor in the first capacitor array and a

switched-capacitor in the second capacitor array are switched simultaneously, not alternately to each other, as claimed in claim 22.

If Fujii's system were to be modified to *alternately* switch a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array, as the Examiner alleges, when a switched-capacitor in the first capacitor array, for example, the capacitor **49** (switch **36**), is switched in a first instance, no switched-capacitor in the second capacitor array would be switched at the same time. Then, in the next instance, a switched-capacitor, for example, the capacitor **56** (switch **42**) in the second capacitor array would be switched, while all switched-capacitors in the first capacitor array would remain unchanged. Such alternate switching is not obvious from Fujii, since in Fujii's system as shown in FIG. 6 thereof, a switched-capacitor in the first capacitor array and the corresponding switched-capacitor in the second capacitor array are connected to the same signal line and therefore must be switched together.

In addition, Fujii does not provide any motivation or suggestion to modify its "simultaneous switching" to "alternate switching" in order to control the oscillation frequency for the following reason: As shown in FIG. 6 of Fujii, a pair of switched capacitors of the same capacitance (one in the first capacitor array, and the other in the second capacitor array) are controlled by the same signal. For example, signal "IN0" controls the both switches **36** and **42**, which changes the capacitance by the amount of C for each capacitor array. Similarly, signal "IN1" controls the both switches **37** and **43**, which changes the capacitance by the amount of 2C for each capacitor array. Since the

capacitor values (C, 2C, 4C, 8C, 16C, and 32C) represent the corresponding to bit values (2^0 , 2^1 , 2^2 , 2^3 , 2^4 , and 2^5) of the 6-bit signal (IN0 through IN5), whenever a new 6-bit signal is given, the pair of capacitors must be switched simultaneously in order to achieve the correct capacitance value in accordance with the 6-bit signal. Otherwise, the capacitance value would not follow the control signal and the oscillator frequency would not be properly controlled. Thus, it is necessary for Fujii to *simultaneously* switch the pair of capacitors in order to operate as intended, and therefore any deviation from that simultaneous switching could render Fujii's system unworkable.

Accordingly, Fujii neither teaches nor suggests switching a switched-capacitor in the first capacitor array and a switched-capacitor in the second capacitor array alternately to each other such that the switched-capacitor in said first capacitor array and the switched-capacitor in said second capacitor array are not switched at the same time, as claimed in claim 22.

Claims 27 and 32 also recite substantially the same distinctive feature as claim 22. Accordingly, it is respectfully requested that the rejection of claims based on Fujii be withdrawn.

In view of the foregoing, it is respectfully asserted that all of the claims are now in condition for allowance.

Request for Allowance

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

Request for Entry of Amendment

Entry of this Amendment will place the Application either in condition for allowance, or at least, in better form for appeal by narrowing any issues. Furthermore, as mentioned above, the present amendment neither raises a new issue nor requires a new search, since the added limitations are the features which have been fully discussed in the Applicants' previous response, and the Examiner has already fully considered the limitations at issue, as the Examiner mentioned in Response to Argument section (page 3) of the Final Office Action. Accordingly, entry of this Amendment is appropriate and is respectfully requested.

Allowable Subject Matter

The Examiner is thanked for the kind allowance of claims 1-21, and for finding of allowable subject matter in claim 23-26, 28-31 and 33-36 if rewritten in independent form including all of the limitation of the base claim and any intervening claims. Applicants acknowledge the Examiner's statement of reasons for allowance as set forth in the Office Action. However, Applicants point out that the reasons for allowability of the above referenced claims are not limited to the reasons for allowance as set forth in the

Office Action, and that additional reasons for allowability may exist, each of which may be independently sufficient to establish the patentability of one or more pending claims.

Applicants respectfully reserve the right to introduce, articulate, or otherwise comment on any such additional reasons for allowance as may be appropriate in any future proceedings concerning the claimed invention.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

The Commissioner is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number: 12-2252 (LSI Logic Corporation).

Respectfully submitted,
THELEN REID & PRIEST, LLP

Dated: September 15, 2003



Masako Ando

Limited Recognition under 37 CFR §10.9(b)

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Expires: January 1, 2004


Harry I. Moatz

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